DOCUMENT RESUME

ED 328 036 EC 233 250

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TITLE A Comparison of Learning Disabled and Nondisabled Adolescent Motivational Processes.
PUB DATE Aug 90
NOTE 19p.; Paper presented at the Annual Meeting of the American Psychological Association (98th, Boston, MA, August 10-14, 1990).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Achievement; Adolescents; Affective Behavior; Attribution Theory; *Cognitive Processes; Comparative Analysis; Competence; Failure; Feedback; *Goal Orientation; High Schools; Intelligence; *Learning Disabilities; Models; Performance; Problem Solving; *Psychological Patterns; Student Attitudes; Student Development; *Student Motivation; Success

ABSTRACT

This research explored cognitive-motivational patterns of learning-disabled and nondisabled adolescents by employing the theoretical model of C. S. Dweck, which posits that a "learning goal" orients students toward the development of competence, whereas a "performance goal" orients students toward the documentation of competence, and that these different goals result in different interpretations of the achievement context. Specifically, this study examined whether the experimental manipulation of the achievement context enhanced or impaired 63 learning-disabled and 69 nondisabled adolescents' cognitions, affective responses, and task choice behavior when confronted with success and failure feedback on a complex and ambiguous problem-solving task. Data indicate that Dweck's social-cognitive model holds explanatory value for conceptualizing cognitive-motivational processes. Nondisabled adolescents were found to feel better after success and to use more low-effort attributions after failure than learning-disabled subjects. Learning-disabled subjects tended to blame inadequate ability more for their failure than nondisabled subjects did. A belief in the fixed, static nature of intelligence promoted negative affect in the face of achievement obstacles. Level of confidence mediated future challenge-seeking for adolescents who subscribe to a belief in the stable nature of intelligence. (24 references) (JDD)

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Division of Theoretical and Behavioral Foundations

Educational and Clinical Psychology

Laboratory for Research on Adolescence

ED328036

A COMPARISON OF LEARNING DISABLED AND NONDISABLED ADOLESCENT MOTIVATIONAL PROCESSES *

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* Paper presented at the 98th Annual Meeting of the American Psychological Association, Boston, MA, August, 1990.
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EC233750

A COMPARISON OF LEARNING DISABLED AND NONDISABLED ADOLESCENT MOTIVATIONAL PROCESSES

ABSTRACT

High school adolescents (Learning Disabled: n=63; Nondisabled: n=69) were classified as entity or incremental theorists on a theory of intelligence measure (Dweck & Henderson, 1988). On a four-dimension, two-choice discrimination problem, one-third of the subjects received instructions oriented toward increasing competence (Learning Goal), one-third received instructions oriented toward displaying competence (Performance Goal), and one-third received no instructions (No Goal). All subjects were exposed to 3 trials each of noncontingent success and failure feedback. Results revealed that Dweck's (1986) heuristic framework holds explanatory value for conceptualizing learning disabled and nondisabled adolescents' cognitive-motivational processes.

A COMPARISON OF LEARNING DISABLED AND NONDISABLED ADOLESCENT MOTIVATIONAL PROCESSES

INTRODUCTION

Students with learning disabilities have been characterized as learned helpless (Grimes, 1981; Licht, 1983; Thomas, 1979; Torgesen & Licht, 1983). It has been proposed that learned helplessness develops due to prolonged exposure to academic failure and is maintained because of maladaptive achievement cognitions (attributions for failure to inadequate ability, attributions for success to external factors) and achievement-related behaviors (reduced task persistence, reduced effort expenditure). There is substantial evidence which documents significant differences between learning disabled students and their normally-achieving peers in their perceptions of the causes for achievement success and failure (Aponik & Dembo, 1983; Butkowsky & Willows, 1980; Cooley & Ayres, 1988; Jacobsen, Lowery, & DuCette, 1986; Kistner, Osborne, & LeVerrier,1988). Comparison of these subject groups indicates that learning disabled students frequently exhibit a maladaptive pattern of achievement-related beliefs (Licht, 1983) although individual differences in adaptive/maladaptive motivational patterns have been observed (Kistner & Torgesen, 1987; Licht & Kistner, 1986). While a vast literature is available on elementary aged learning disabled students, empirical evidence on motivational processes of learning disabled adolescents is both sparse (Adelman, 1978) and equivocal (Deshler, Warner, Schumaker, & Alley, 1983).

Dweck (1986) posits that children subscribe to different goals in achievement settings. Her research-based cognitive model predicts that a "learning goal" orients students toward the development of their competence, whereas a "performance goal" orients students toward the

documentation of competence. These different "achievement goals" result in different perceptions/interpretations of the achievement context (Dweck & Bempechat, 1983). Furthermore, different implicit beliefs about competence ("theories of intelligence") predict an orientation toward learning or performance goals (Dweck & Elliott, 1983). The "entity" theorist views intelligence as a fixed, stable quantity and is concerned with validating that quantity (performance goal orientation) (Dweck, 1986). The "incremental" theorist considers intelligence a malleable quality and is concerned with enhancing that quality (learning goal orientation) (Dweck, 1986).

Dweck's research program has demonstrated that theories of intelligence and their accompanying goal orientations predict mastery-oriented (challenge-seeking, task persistence) or learned helpless (challenge-avoidance, performance deterioration) response patterns when students are faced with achievement obstacles (Diener & Dweck, 1978, 1980; Dweck & Reppucci, 1973; Elliott & Dweck, 1988). Moreover, these differential response patterns have been shown to be associated with different interpretations of the achievement situation. Mastery-oriented children place greater emphasis on insufficient effort as a cause for their achievement difficulty, whereas learned helpless children tend to attribute failure to inadequate ability.

PURPOSE OF THE STUDY

Findings with upper elementary (Elliott & Dweck, 1988) and junior high school (Leggett, 1986) nondisabled students have yielded encouraging support for Dweck's social-cognitive model (Dweck, 1986; Dweck & Bempechat, 1983; Dweck & Elliott, 1983; Dweck & Leggett, 1988). As yet

this paradigm has not been applied to any special populations such as the learning disabled, nor to nondisabled high school adolescents.

This research was designed to explore cognitive-motivational patterns of learning disabled and nondisabled adolescents by employing the theoretical model of Dweck and colleagues. Specifically, the research examined whether the experimental manipulation of the achievement context enhanced or impaired adolescents' cognitions, affective responses, and task choice behavior when confronted with success and failure feedback on a complex and ambiguous problem-solving task. This study was also formulated to expand the limited and contradictory evidence on learning disabled adolescents' motivational processes.

METHOD

Participants were 132 male and female high school adolescents (Learning Disabled: n=63; Nondisabled: n=69) who were pre-experimentally classified as entity or incremental theorists on a theory of intelligence measure (Dweck & Henderson, 1988). The latter procedure is novel. Subjects were randomly assigned to one of three achievement goal conditions: a Learning Goal condition, in which subjects were oriented toward increasing their competence; a Performance Goal condition, in which subjects were oriented toward displaying their competence; and a No Goal condition, which served as a control condition for the effects of achievement goal manipulation. Subjects' level of confidence (Dweck & Henderson, 1988) was measured prior to exposure to predetermined noncontingent success and failure feedback on a four-dimension, two-choice discrimination task. Achievement cognitions and affective responses were measured subsequent to three trials each of counterbalanced success/failure experience. A measure of task choice preference (Leggett,

1986) was administered as part of the debriefing procedure. Task choice was operationally defined by the subject's selection of the more difficult ("failure") problems or the easier ("success") problems as the preferred choice for future problem-solving.

DESIGN AND RESULTS

This study employed a 2 (Diagnostic Category) x 2 (Theory of Intelligence) x 3 (Goal Condition) factorial design with repeated measures (success/failure) across subjects and conditions. Major dependent variables consisted of achievement cognitions (effort and ability attributions) and affective responses subsequent to success and failure outcomes (possible range of scores = 2 - 12). Level of confidence (possible range of scores = 1 - 6) also served as a dependent measure, and task choice preference served as an independent measure, in order to examine specific predictions proposed by Dweck's model.

Preliminary tests for comparability of learning disabled and nondisabled subject samples revealed a significant effect for ability level, $F(1,102) = 12.40$, $p < .001$. Nondisabled adolescents obtained a significantly higher mean IQ percentile ($M = 64.38$) than learning disabled ($M = 42.48$). Separate analyses of covariance (ANCOVAs) were subsequently performed on the data, using IQ percentile as the covariate, in order to control for the influence of ability level on the response variables. Since IQ information was unavailable for some subjects, ANCOVA procedures were based on total sample of 106 (Learning disabled: $n = 48$; Nondisabled: $n = 58$).

Achievement Cognitions and Affective Responses

Table 1 contains a summary of the ANCOVA results on the dependent variables (effort attributions, ability attributions, affective responses) after both performance outcomes.

Subsequent to success, no significant main or interaction effects were detected on effort or ability attributions. A significant main effect for diagnostic category on affective responses after success outcome was found, $F(1,93) = 6.13$, $p<.05$. Nondisabled adolescents reported feeling significantly better after successful experience with a challenging task ($M = 10.27$) than learning disabled adolescents ($M = 9.48$).

Following failure exposure, a significant main effect for diagnostic category on effort attributions was detected, $F(1,93) = 7.39$, $p<.01$. As predicted, nondisabled subjects displayed significantly greater agreement with insufficient effort attributional statements as a causal explanation for their failure ($M = 8.15$) than learning disabled subjects ($M = 6.80$). A significant main and several significant interaction effects were detected on ability attributions following failure exposure as follows: a main effect for diagnosis, $F(1,93) = 4.30$, $p<.05$; a diagnosis x theory interaction, $F(1,93) = 5.78$, $p<.05$; a diagnosis x goal condition interaction, $F(2,93) = 3.83$, $p<.05$. Overall, learning disabled subjects blamed inadequate ability for their failure more ($M = 7.68$) than nondisabled subjects ($M = 6.80$). All of the findings were qualified by a three-way interaction of diagnosis x theory x goal condition, $F(2,93) = 3.67$, $p<.05$, indicating that theory of intelligence and goal condition interacted in a different manner for learning disabled and nondisabled subjects.

Refer to Table 2 for the adjusted means on this interactional effect. Within the learning disabled sample, entity theorists in the Learning Goal condition agreed more with low ability attributions ($M = 8.55$) than incremental theorists ($M = 5.46$). In the Performance Goal condition, the same pattern was observed for learning disabled entity theorists ($M = 8.80$) and learning disabled incremental theorists ($M = 7.33$). In the No Goal

condition, a slight similar trend was found for learning disabled entity theorists (M = 8.07) and incremental theorists (M = 7.84).

For nondisabled subjects, in contrast, the interaction of factors was different, with the magnitude of difference between entity and incremental theorists across goal conditions following an unexpected pattern. In the Performance Goal condition, consistency in the use of inadequate ability explanations for failure was found for entity (M = 6.44) and incremental (M = 6.37) theorists. Low ability attributions in the No Goal condition were only slightly higher for entity theorists (M = 6.51) than incremental theorists (M = 6.22). In the Learning Goal condition, however, nondisabled entity theorists agreed less with low ability statements after failure (M =7.02) than incremental theorists (M = 8.18).

Figures 1 (Learning Disabled) and 2 (Nondisabled) portray these findings in graphic format. Inspection of these figures reveals that the Learning Goal manipulation interacted with theory of intelligence to produce the expected effects for the learning disabled sample only. In the nondisabled sample, the Learning Goal condition interacted with theory of intelligence in a manner that elicited nonpredictive effects. The Performance Goal manipulation also interacted with theory of intelligence in the predicted direction for learning disabled subjects, whereas little effect was produced in the nondisabled group. The No Goal condition showed a non-interactional effect on theory of intelligence in both subject samples.

On affective responses following failure, a significant main effect for theory of intelligence was found, $F(1,93) = 4.80$, $p < .05$. As predicted, entity theorists reported significantly greater negative affect (M = 6.15) after confrontation with achievement failure than incremental theorists (M = 5.39).

Table 1 also reveals that, contrary to predictions based on Dweck's (1986) theorizing, no significant main effects for goal condition were detected on any of the attribution or affective response variables.

Level of Confidence

In order to test for differences in confidence levels among the two diagnosis groups, an analysis of covariance (ANCOVA) was computed on level of confidence, controlling for IQ. Data analysis revealed no significant differences between learning disabled and nondisabled subjects, $F(1,103) = 2.42$, $p = ns$.

A 2 (Theory of Intelligence) x 2 (Task Choice) ANCOVA, with IQ percentile as the covariate, yielded a significant theory x task choice interaction on level of confidence, $F(1,101) = 5.51$, $p<.05$. Further exploration of this finding using ANCOVA tests and a Bonferroni procedure (Rosenthal & Rubin, 1984) to correct for multiple contrasts, revealed a significant task choice effect among entity theorists, $F(1,46) = 7.74$, $p<.01$. Specifically, entity theorists choosing a failure task obtained a significantly higher adjusted mean level of confidence ($M = 4.49$) than entity theorists selecting a success task ($M = 3.73$). Within the incremental theorists, in contrast, no significant task choice effect on level of confidence was detected, $F(1,54) = 1.10$, $p = ns$.

DISCUSSION

These data indicate that Dweck's (1986) social-cognitive model holds explanatory value for conceptualizing learning disabled and nondisabled adolescents' cognitive-motivational processes. As predicted, several significant differences were detected between learning disabled and nondisabled subjects on various response measures, even after the significant influence of differential ability level was controlled for in the

data analysis. Consistent with prior research on the mastery vs. helpless response patterns (Diener & Dweck, 1978; 1980), these nondisabled adolescents were found to feel better after success, and use more low effort attributions after failure, than learning disabled subjects. Learning disabled subjects, in contrast, tended to blame inadequate ability more for their failure than nondisabled subjects. Thus, these results expand the limited and contradictory data base on cognitive-motivational processes of learning disabled adolescents.

The outcomes of this study also provide substantial support for specific facets of Dweck's theoretical model. Particularly compelling are the findings on theories of intelligence as viable constructs in the prediction of adolescents' cognitive-motivational processes. Consonant with Dweck's (1986) proposals, a belief in the fixed, static nature of intelligence (entity theory) promotes negative affect in the face of achievement obstacles. Moreover, level of confidence mediates future challenge-seeking for adolescents who subscribe to a belief in the stable nature of intelligence. The incremental view appears to release students from concerns about documentation/validation of competence.

Failure of the goal inductions to directly enhance or impair adolescents' achievement cognitions and affective responses may reflect procedural artifacts or methodological weaknesses. Nevertheless, the overall outcomes of these experimental treatments do not provide confirmation for Dweck's assertions on the salience of learning and performance goals to evoke differential concerns in a laboratory setting. Given the robustness of Dweck's findings (e.g., Elliott & Dweck, 1988), future research on achievement goal orientations would be warranted.

For learning disabled adolescents, theory of intelligence is a particularly significant factor in elucidating differential response patterns to failure outcome. While existing research has suggested that learning disabled students are at risk for exhibiting a maladaptive attributional pattern (Licht, 1983; Kistner & Torgesen, 1987; Licht & Kistner, 1986), this research has shown that not all learning disabled adolescents fall victim to a self-perpetuating failure cycle. Learning disabled adolescents who subscribe to an incremental theory of intelligence respond in a manner similar to their nondisabled peers. In contrast, learning disabled adolescents who subscribe to an entity theory of intelligence display the most maladaptive pattern of achievement-related beliefs. Thus, Dweck's conceptions of ability provide explanatory power for understanding individual difference patterns within learning disabled subject samples (Licht & Kistner, 1986) and a theoretical framework for continued research efforts with this population.

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Table 1. Summary Table of ANCOVA Results on Dependent Variables.

	Success			Failure		
	Effort	Ability	Affect	Effort	Ability	Affect
Main Effects						
Diagnostic Category		*		**	*	
Theory of Intelligence						*
Goal Condition						
Interaction Effects						
Diag x Theory					*	
Diag x Goal					*	
Theory x Goal						
Diag x Theory x Goal					*	

* $p < .05$

** $p < .01$

Table 2. Adjusted Means for Diagnosis x Theory x Goal Condition Interaction on Ability Attributions after Failure.

	Learning Disabled		Nondisabled	
	Entity	Incremental	Entity	Incremental
Learning Goal	8.55	5.46	7.02	8.18
Performance Goal	8.80	7.33	6.44	6.37
No Goal	8.07	7.84	6.51	6.22

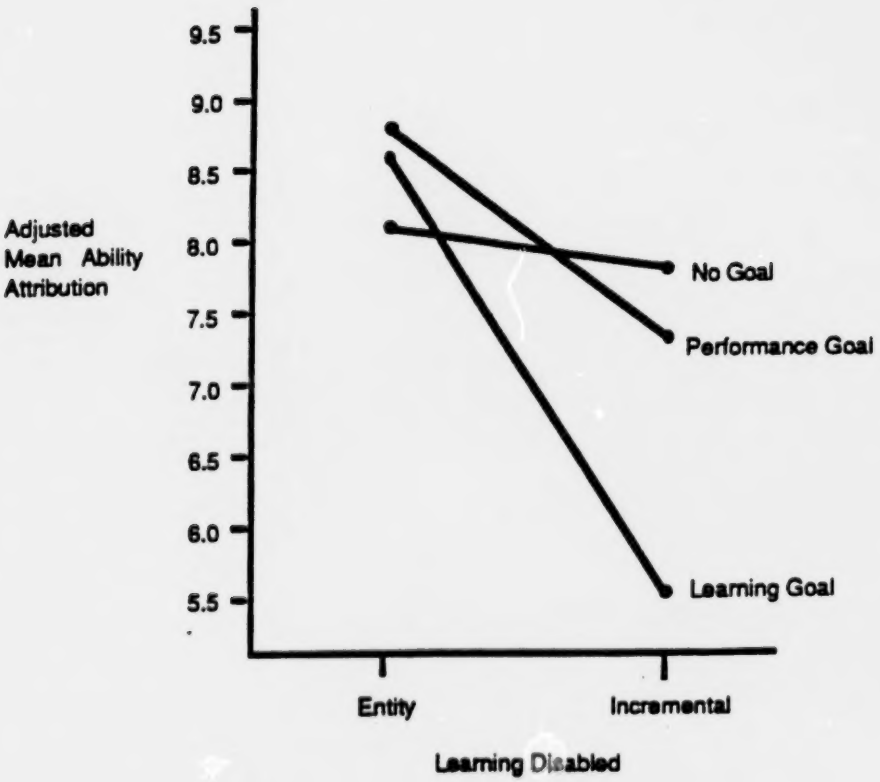

Figure 1. Adjusted Mean Ability Attribution Following Failure as a Function of Diagnosis, Theory of Intelligence, and Goal Condition.

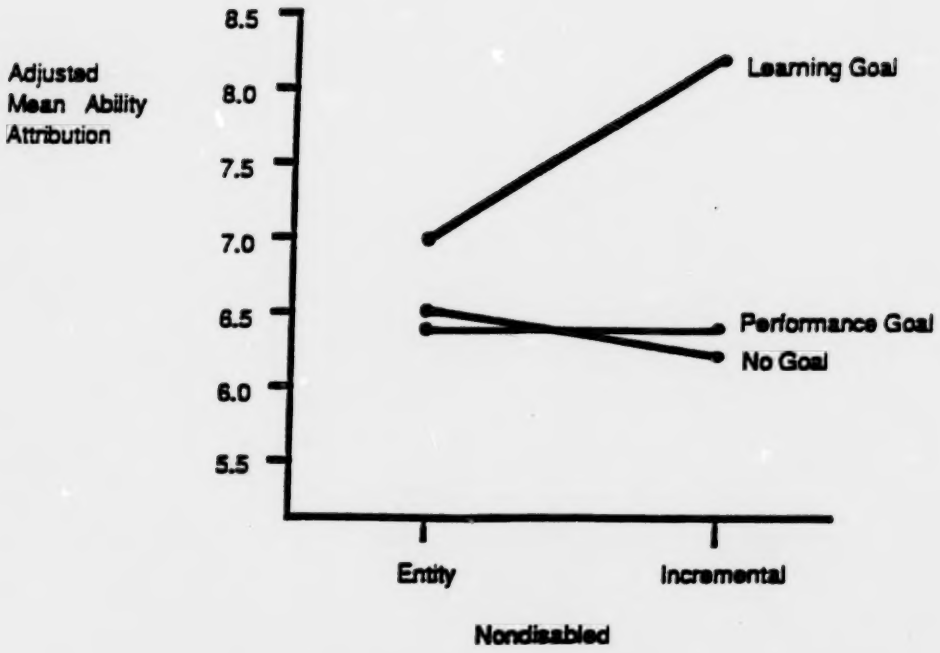

Figure 2. Adjusted Mean Ability Attribution Following Failure as a Function of Diagnosis, Theory of Intelligence, and Goal Condition.